PATENT SPECIFICATION

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Complete Left: March 19, 1932.

Complete Accepted: Aug. 11, 1932.

PROVISIONAL SPECIFICATION.

Improved Apparatus for Removing Dust or Small Particles from Cut Tobacco for Use in Cigarette Making Machinery.

We, THE IMPERIAL TOBACCO COMPANY (OF GREAT BRITAIN & IRELAND) LIMITED, a British Company, of East Street, Bedminster, in the City and County of Bristol, and ALBERT FREDERICK COATES, a British Subject, of "Codrington Grange", Broadway Road, in the City and County of Bristol, do hereby declare the nature of this invention to be as follows:—

This invention relates to the removal of dust or small particles from cut tobacco, and has for its object to provide an improved process and apparatus therefor. The invention is particularly applicable for use in cigarette making machinery.

According to one feature of the invention, cut tobacco is moved forward in a mass layer, and a current of air is passed transversely through said layer to remove dust and small particles of tobacco therefrom.

If desired currents of air may be passed transversely in opposite directions through the layer.

The layer of cut tobacco may be moved forward on a permeable member that passes over or across the mouth of a suction device. The permeable member may be formed as an endless band or as the periphery of a drum or roller.

The invention also consists in cigarette making machinery in which the tobacco is conveyed in a layer by a permeable member that passes over or across the mouth of a suction device.

Various constructional forms of cigarette making machinery embodying the invention will now be described by way of example.

In a known form of cigarette making machine, the cut tobacco is supplied to a hopper, from which it is fed by a carded roller, so that it passes between said roller and a dressing roller, after which it adheres as a layer to the said carded roller, and is subsequently removed therefrom by a picker roller, which delivers it in a shower to a conveying member, for instance an endless belt or a spiked roller, the tobacco finally being delivered down a chute on to the paper band that constitutes the covering of the cigarette rod in its completed form.

In applying the invention to this type of cigarette making machine, the periphery of the carded roller is perforated or otherwise made permeable, and a suction device is provided having a suction mouth opening on to the internal surface of the periphery of the roller between the point of contact with the dressing roller and the position of the picker roller. This suction device acts on the layer of tobacco between the dressing roller and the picker roller and removes dust and small particles of tobacco therefrom.

In one constructional form of this device, suction may be applied to the whole of the interior of the carded roller, and a stationary internal shield or shields provided to mask the suction where not required. Said internal shield or shields may be adjustable.

In addition to the suction action, a current of air may be passed outwardly through the periphery of the carded roller at a certain point or points in order to loosen the layer of tobacco and dust thereon, or to prevent the tobacco from forming a closely compact mass. This outwardly moving current of air may be used to condition the tobacco, for instance either to add moisture or to remove it.

If desired, a further suction device may be provided with its mouth located inside the carded roller beyond the picker roller, and such suction device will act to remove from the atmosphere any dust that may be projected by the picker roller into the space between the carded roller and the conveying member. This will form a convenient means for removing the dust and small particles of tobacco projected by the picker roller in cases where there is very little room for the provision of the usual suction pipes outside the rollers.

Further, a suction device may also be provided with its mouth opening on to the internal surface of the dressing roller, which is then made permeable. This will act to remove dust that may be thrown up by the picker roller.

In another form of the invention, the tobacco is passed in the usual way from the hopper between the carded roller and

[Price 1/-]

dressing roller and removed therefrom by the picker roller so that it is delivered in a shower on to a conveying device constituted by a permeable member that passes over the mouth of a suction device. This permeable member may be in the form of an endless band, or the periphery of a drum or roller. This suction device removes the dust or small particles of tobacco from the layer of tobacco on the conveying device, and the dust free tobacco is passed on towards the trough that leads the tobacco to the paper band that constitutes the covering of the cigarette rod in its completed form.

In another known form of cigarette making machine, the tobacco is passed from a hopper between a carded roller and a dressing roller, and removed from said carded roller by a picker roller that delivers it in a shower to a conveying device that leads the tobacco on to a small carded or spiked roller arranged above a chute leading to the paper band that constitutes the covering of the cigarette rod in its completed form, a second picker roller being provided to remove the tobacco from the said small carded or spiked roller.

In one method of applying the invention to this type of cigarette making machine, the small carded or spiked roller is made permeable, and suction is applied to the inside or a portion of the inside thereof. For instance a suction device may be provided with its mouth opening on to the internal surface of the said carded or spiked roller so as to remove the dust from the layer of tobacco thereon. Preferably said mouth does not extend to the point of contact with the second picker roller, in order not to interfere with the action thereof in removing the layer of tobacco. Alternatively, the whole interior of the said carded or spiked roller may be placed under suction, and if desired a stationary plate inside said roller may be provided in the neighbourhood of the picker roller to interrupt the action of the suction thereon. This stationary plate may, if desired, be adjustable.

Dated this 19th day of June, 1931.

C. G. R. ELSDON,
Chartered Patent Agent,
East Street, Bedminster, Bristol.

COMPLETE SPECIFICATION.

Improved Apparatus for Removing Dust or Small Particles from Cut Tobacco for Use in Cigarette Making Machinery.

We, THE IMPERIAL TOBACCO COMPANY (OF GREAT BRITAIN & IRELAND) LIMITED, a British Company, of East Street, Bedminster, in the City and County of Bristol, and ALBERT FREDERICK COATES, a British Subject, of "Codrington Grange", Broadway Road, in the City and County of Bristol, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to apparatus for removing dust or small particles from cut tobacco for use in cigarette making machinery, and has for its object to provide improvements therein.

According to the invention cut tobacco is conveyed in a mass layer by a carded or spiked roller that is permeable and inside which is a suction device which acts to cause a current of air to pass transversely through said mass layer of cut tobacco to remove dust and small particles therefrom.

Three different constructional forms of cigarette making machinery embodying the invention are respectively shown in the accompanying drawings, Figs. 1, 2 & 3, all of which are vertical sections.

Fig. 1 shows a known form of cigarette making machine in which cut tobacco is supplied to a hopper 1, from which it is fed by a carded roller 2, so that it passes between said roller and a dressing roller 3, after which it adheres as a layer to said carded roller, and is subsequently removed therefrom by a picker roller 4, which delivers it in a shower to an endless belt 5 which carries the tobacco on to a small spiked roller 6, from which it is removed by a picker roller 7 so that it is delivered down a chute 8 on to the web 9 that constitutes the covering of the cigarette rod in its completed form. 10 is a plain roller co-operating with the spiked roller 6.

In applying the invention to this type of cigarette making machine, the periphery of the carded roller 2 is perforated as indicated by the orifices 11, and a suction chamber 12 is provided inside the roller 2 and having a mouth opening out between the point of contact with the dressing roller 3 and the position of the picker roller 4. 13 diagrammatically

indicates a pipe passing through a bearing of the carded roller and acting to transmit suction from a suction producing device, not shown, to the suction chamber 12.

It will be seen that air will be passed transversely through the mass layer of tobacco on the carded roller into the suction chamber 12 and will act to remove dust and small particles from the tobacco. The suction will not operate on the part of the carded roller that is acted upon by the picker roller 4, and thus the action of the picker roller 4 in removing the tobacco will not be interfered with.

If desired, the inside of the carded roller may also be provided with a second enclosed chamber 14 to which air under pressure is passed through the pipe 15, the arrangement being such that the air escapes from the chamber 14 through the adjacent perforations in the periphery of the carded roller 2. This air will then act to loosen the layer of tobacco and dust thereon, or to prevent the tobacco from forming a closely compact mass.

If desired this current of air may be used to condition the tobacco, for instance either to add moisture or to remove it.

A further suction chamber 16 may also be provided inside the carded roller beyond the picker roller, said chamber being in communication with the pipe 13 hereinbefore referred to which acts to apply the suction. The air sucked in across the adjacent perforations into this suction chamber 16 acts to remove from the atmosphere any dust that may be projected by the picker roller into the space between the carded roller and the endless belt 5.

Further, a suction chamber 17 may also be provided inside the dressing roller with its mouth opening onto the internal surface of said dressing roller, which is made also permeable. The suction action thereby produced through the perforations in the dressing roller acts to remove dust that may be thrown up by the picker roller 4.

Fig. 2 refers to the same general form of tobacco feeding mechanism for cigarette making machines, but only shows the part of the mechanism that deals with the tobacco after it reaches the endless belt 5.

In this case the suction is applied to the inside of the small spiked roller 6 whose periphery is perforated as indicated at 20. 21 indicates a shield inside the small spiked roller 6 so as to protect the adjacent perforations of the spiked roller from the effects of the suction. It will be seen that a current of air is drawn across the mass layer of tobacco while it is upon this small spiked roller 6, and said current of air passing to the inside of the roller 6 thus acts to remove dust and small particles from the tobacco.

Referring to Fig. 3,—Cut tobacco is fed to the hopper 1 from which it is passed between a carded roller 2 and dressing roller 3 so that it adheres to said carded roller 2, the tobacco then being removed therefrom by the picker roller 4 which delivers it in a stream on to the large spiked roller 23 from which it is removed by the picker roller 24 and directed into the chute 8 on to the paper web 9. The roller 22 at the bottom of the hopper helps to feed the tobacco on to the carded roller 2.

The large spiked roller 23 has its cylindrical surface perforated, while a suction chamber 25 is provided inside this large spiked roller with its mouth 26 acting to suck air through a part of the periphery in front of the position of the picker roller 24. This current of air acts to remove dust and small particles from the mass layer of tobacco on the roller 23 while it is not directed on to the layer of tobacco adjacent the picker roller and thus does not interfere with the operation of the latter member.

If desired a second chamber 27 may be provided inside the spiked roller 23 and air may be passed under pressure to said chamber 27 so that it passes outwardly through the perforations in the roller 23 and acts to loosen the tobacco.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. Improved apparatus for removing dust or small particles from cut tobacco for use in cigarette making machinery, in which cut tobacco is conveyed in a mass layer by a carded or spiked roller that is permeable and inside which is a suction device which acts to cause a current of air to pass transversely through said mass layer of cut tobacco to remove dust and small particles therefrom.

2. Improved apparatus for removing dust or small particles from cut tobacco as claimed in claim 1, in which a chamber under air pressure is also provided inside the permeable roller and acts to force air outwardly across the mass layer of cut tobacco to loosen same or prevent it from forming a closely compact mass.

3. Improved apparatus as claimed in claim 2, in which the air passing outwardly through the mass layer of tobacco is used to condition the tobacco.

4. Improved apparatus as claimed in any of the preceding claims, in which the

tobacco is stripped from the carded or spiked roller by a picker roller.

5. Improved apparatus as claimed in any of the preceding claims, in which the mass layer of tobacco is conveyed by a carded roller and after being acted upon by the suction is removed by a picker roller, and an extra suction chamber is provided inside said carded roller and beyond the picker roller to remove from the atmosphere any dust or small particles that are projected into the adjacent space.

6. Improved apparatus for removing dust or small particles from cut tobacco for use in cigarette making machinery, constructed and operating substantially as hereinbefore described and as shown in the accompanying drawings.

Dated this 18th day of March, 1932.

C. G. R. ELSDON,
Chartered Patent Agent,
East Street, Bedminster, Bristol.

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SHEET 1

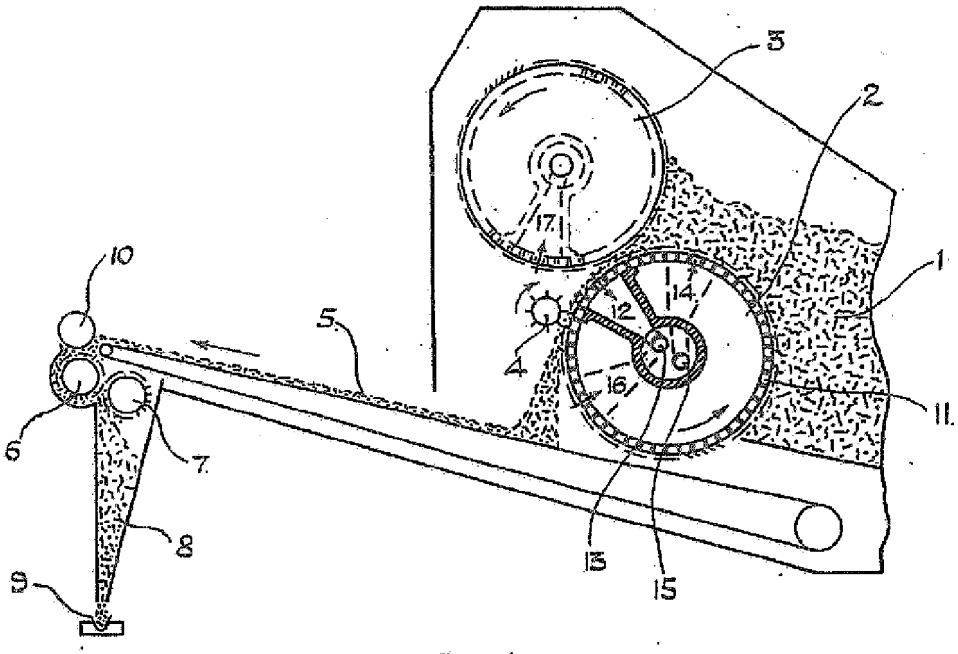

Fig. 1.

Fig.

SHEET 1

SHEET 2

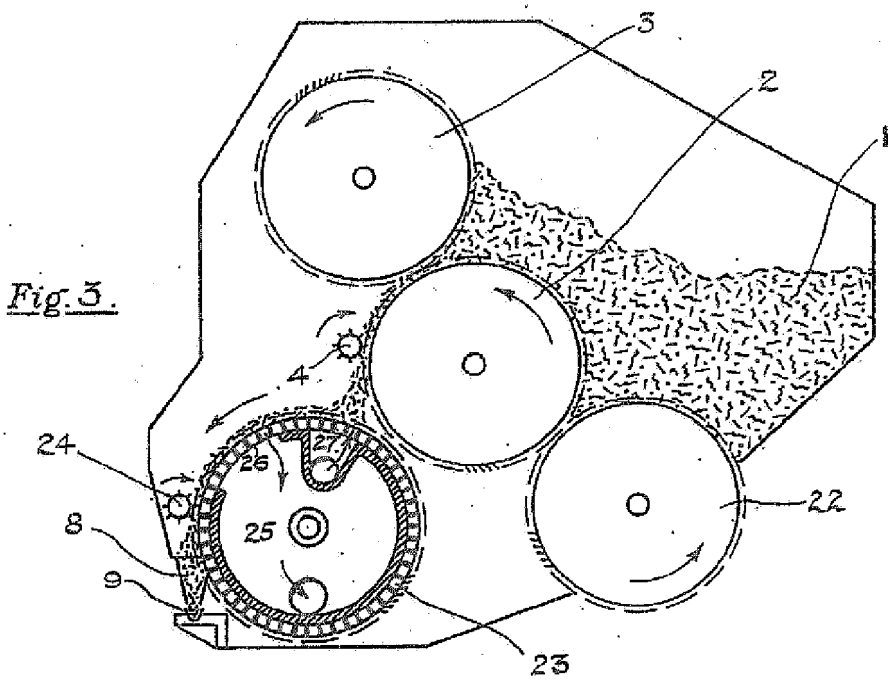

Fig. 3.

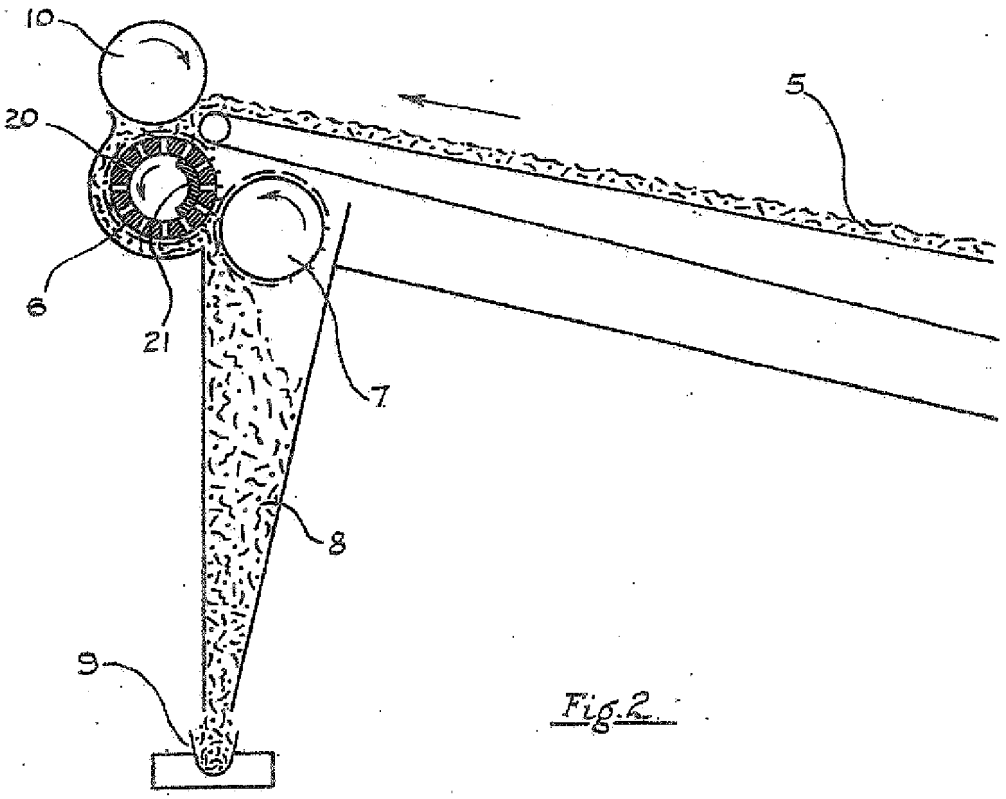

Fig. 2.

1

11

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378,143 COMPLETE SPECIFICATION

2 SHEETS

SHEET 1

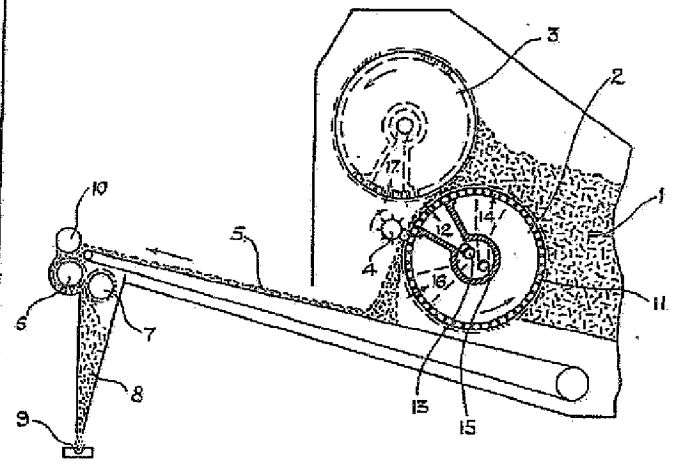
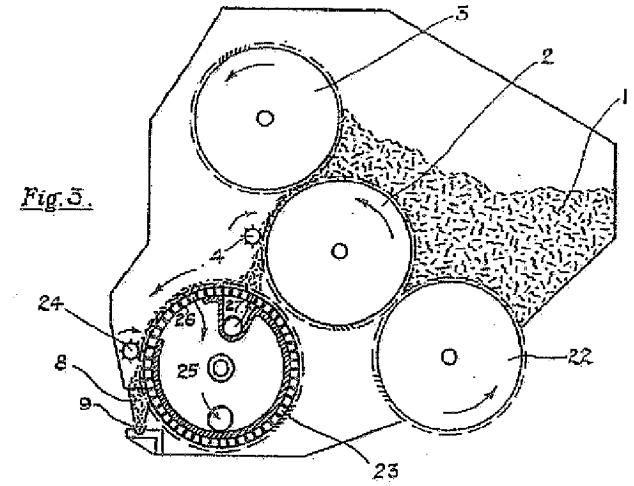


Fig. 1.

SHEET 2

Fig. 3.



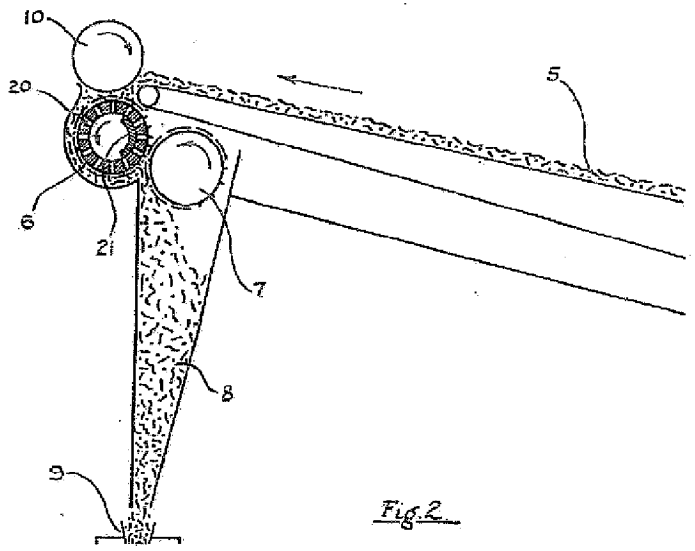


Fig. 2.